



Department of Commerce
Innovation is in our nature.



Aerospace in Washington State

Impact Washington
NIST-MEP Affiliate

CHOOSE  **Washington**
STATE

Washington Aerospace Fast Facts



- Near 100-year legacy
- Over 1,350 companies
- 132,500+ in aerospace related employment
- 94,200 employed in aerospace manufacturing
- 19% of all U.S. aerospace workers are in Washington State
- Ports equidistant to European and Asian markets, ideal for exporting products

Washington State Aerospace Importance

WASHINGTON AEROSPACE

\$76B DIRECT, INDIRECT, & INDUCED
IMPACT SALES, 2012

BOEING COMMERCIAL

 **\$476M** IN STATE
TAX REVENUES

REVENUE TO THE STATE ECONOMY = **\$70B**
(11% OF STATEWIDE GROSS BUSINESS INCOMES)

#WAAero INDUSTRY | \$4 BILLION IN STATE REVENUE SINCE 2004

135,500

JOBS

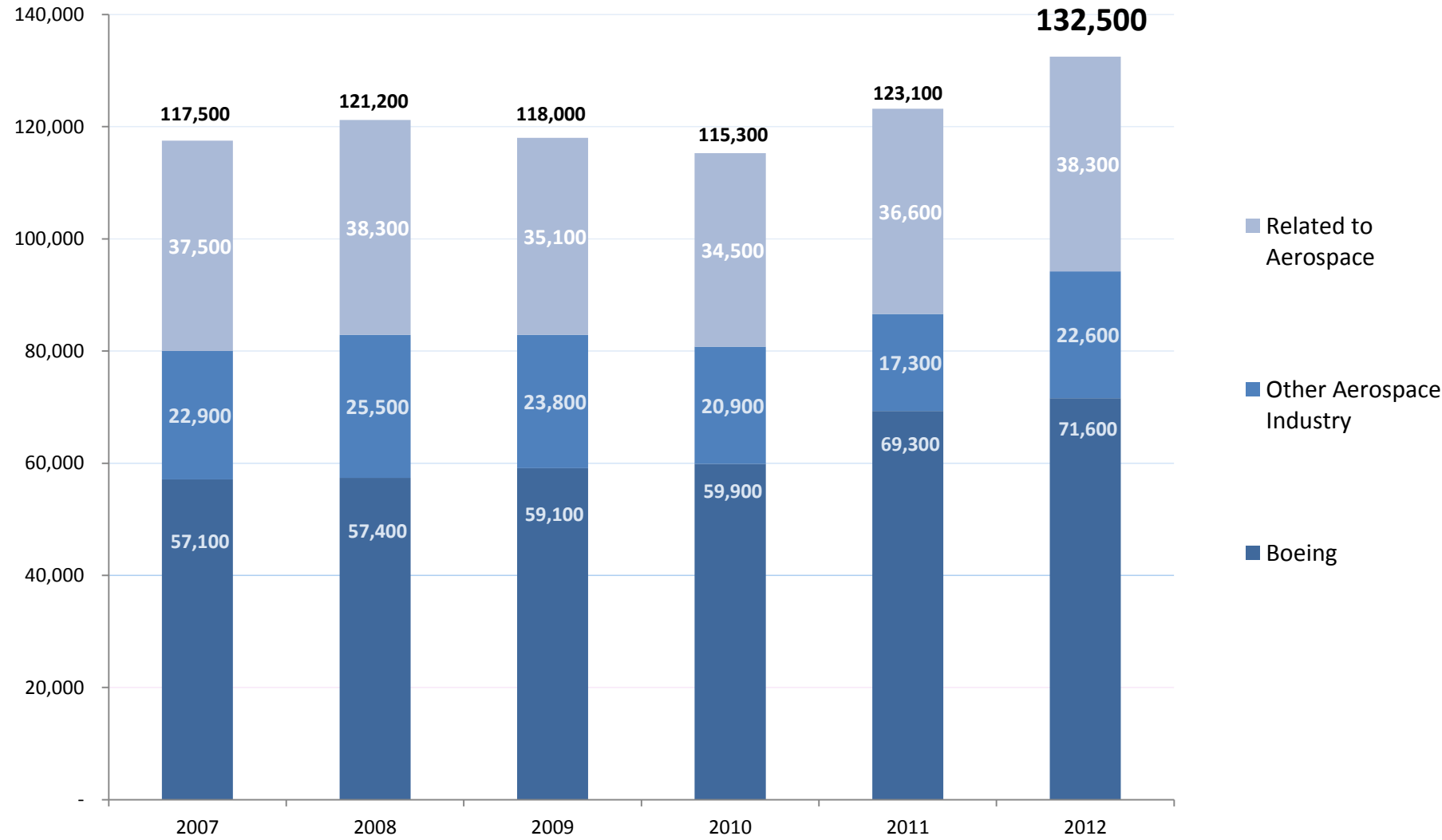


\$11.5B

WAGES FOR THE INDUSTRY*
(11% OF ALL WAGES EARNED STATEWIDE)

AT 1,350 ESTABLISHMENTS
ACROSS THE STATE

Washington State Aerospace Industry Employment



A Unique Moment in Time



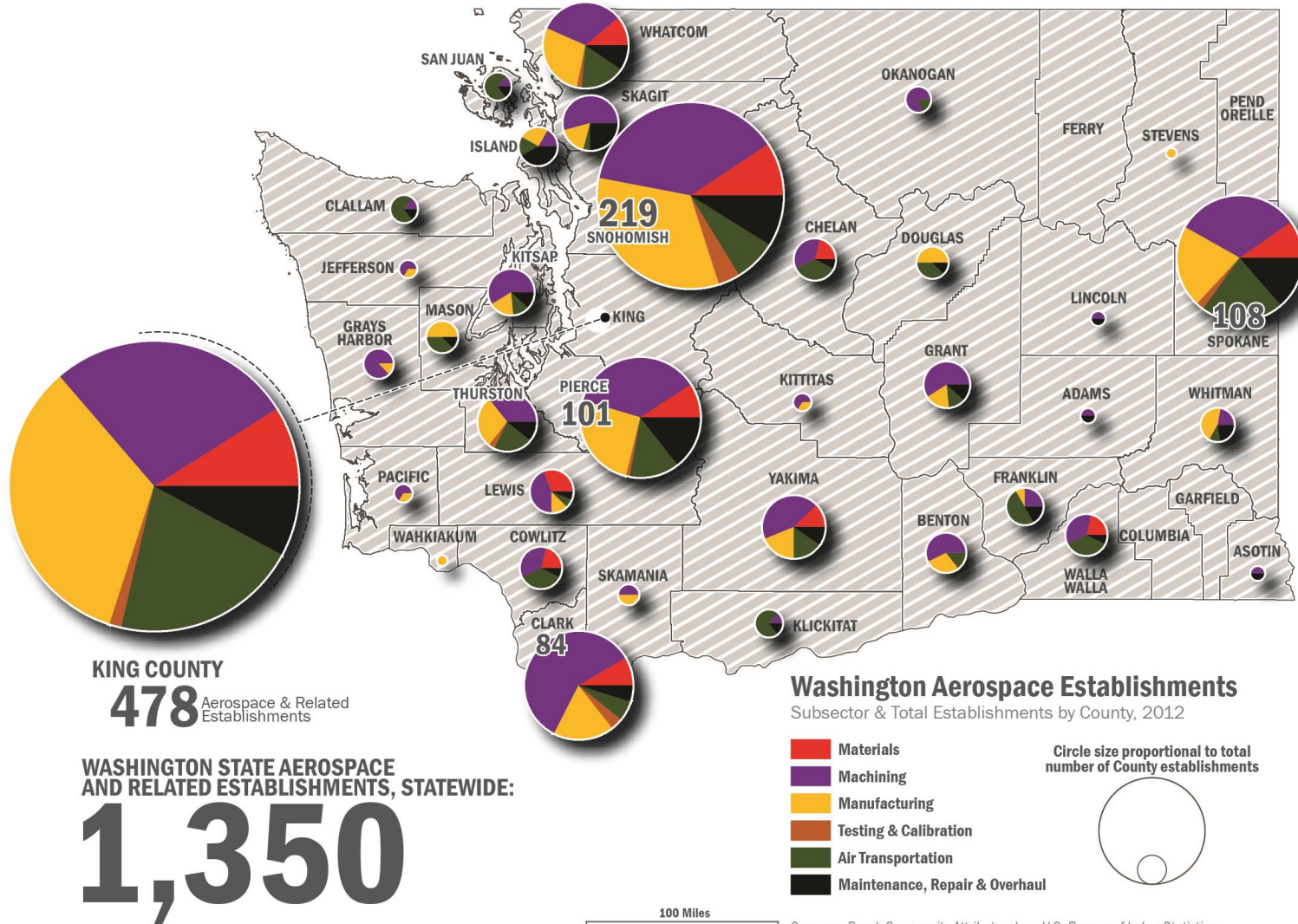
- Approaching Boeing's centennial in 2016
- Demand for 35,280 new airplanes (\$4.84 trillion) by 2032
- Unprecedented production increases across all Boeing assembly lines
- New programs (737MAX, 787-10, 777X)
- Re-constitution of local commercial supply chain
- Emerging subsectors (UAS, Aviation Biofuels, Space)

Washington's Aerospace Innovation Cluster

A large and diverse supply chain has organically developed across the state over the past 90 years.

- More than 1,350 companies make up the aerospace cluster.
- Broad range of capabilities in several main sub-sectors:
 - Airframing
 - Engineering
 - Composites
 - Aircraft interiors
 - Avionics
 - Tooling
 - UAS

Washington's Aerospace Clusters



Washington's Aerospace Clusters



- **NIST-MEP Client opportunities**
 - Strategic Business Planning
 - Tactical Operating Planning
 - Valuation
 - CoreValue Assessment
 - Business value in \$
 - Business value gap in \$
 - Plan to cure gap
 - Succession Planning
 - Family businesses

Washington's Aerospace Clusters



- **NIST-MEP Client Opportunities**
 - Topline/Revenue
 - Growth/Marketing/Sales
 - Innovation
 - Bottomline/EBITDA
 - Lean/Continuous Improvement
 - Supply Chain
 - Automation
 - Delivery issues
 - ERP/Production Management

Washington's Aerospace Clusters



- **NIST-MEP Client Opportunities**

- Quality Issues

- Six Sigma quality philosophy

- Supply Chain Issues

- Goals and objectives

- Root cause analysis

- Supply Chain management analysis and tools

- Systemic improvement

Washington's Aerospace Clusters



- **What business opportunities do we discover?**
 - Businesses that are good but underfunded
 - Businesses looking for exit/succession
 - Clear valuation gaps straightforward solutions
 - Some gaps may be filled with merger or acquisition
 - Supply chain weaknesses
 - Businesses with potential to be best in class

Washington's Aerospace Clusters

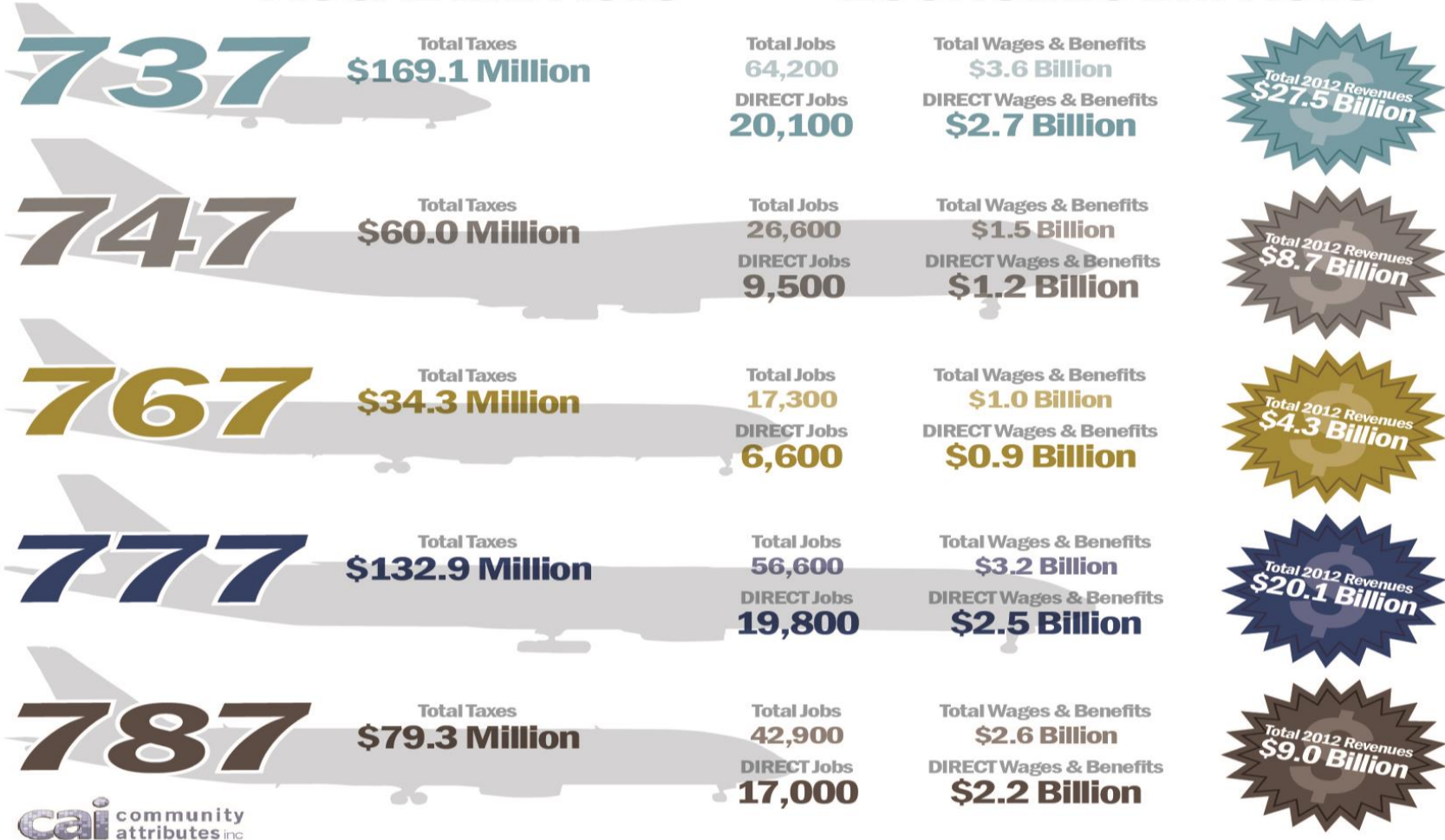


- **What we know and what we can share**
 - Not a brokerage
 - Charter- To help manufacturing grow in our state
 - Aerospace tremendous opportunities
 - MEP has great tools to improve performance
 - Not a typical consulting arrangement
 - Not for Profit -Trusted advisor
 - Do work with Private Equity groups and VC's
 - Can be a connectory

Washington's Aerospace Cluster: Employment

FISCAL IMPACTS

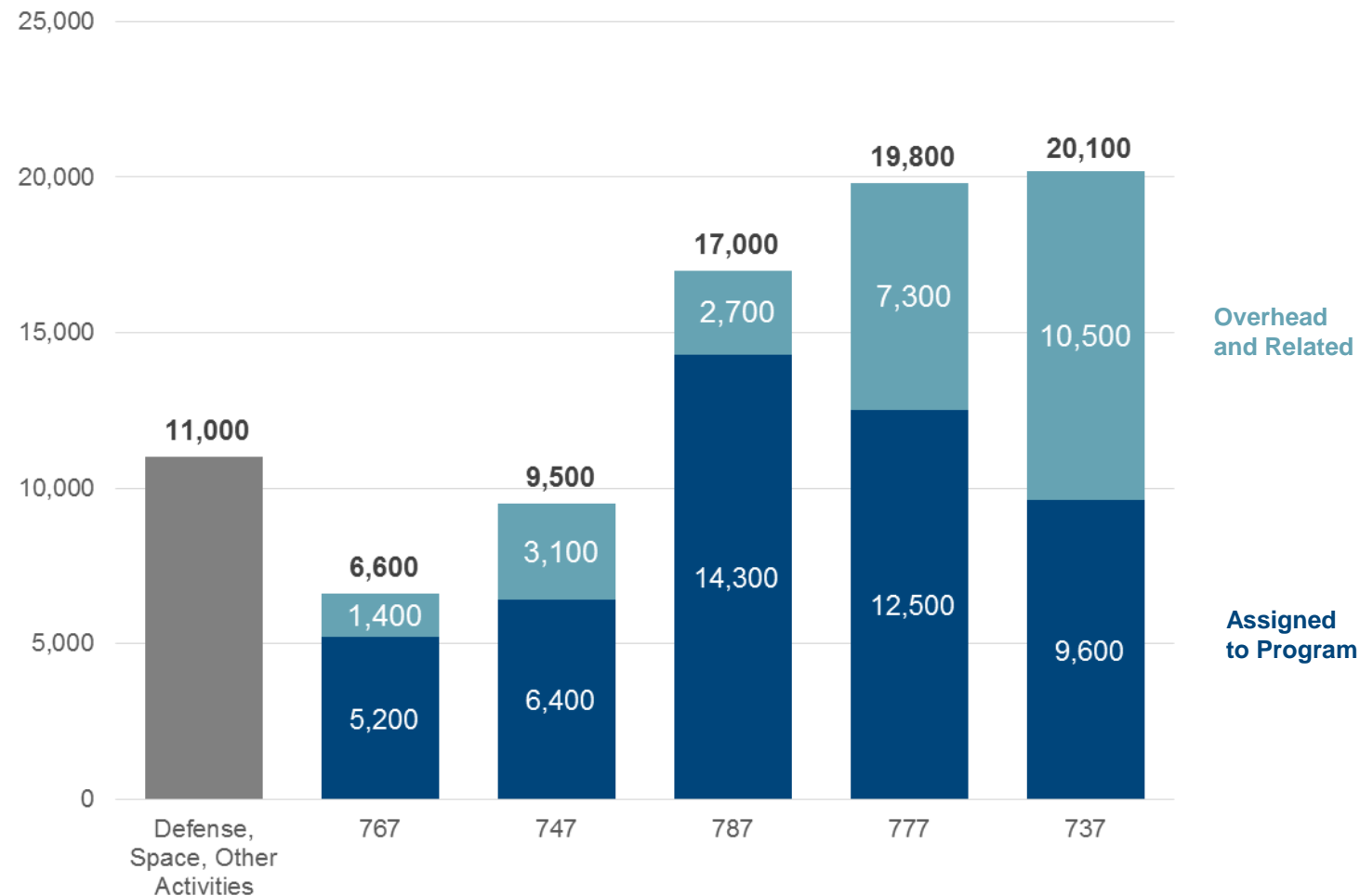
ECONOMIC IMPACTS



Washington's Aerospace Cluster: Economic Impacts

Employment Allocated by Aircraft Family, 2012

Number of workers; total estimated Boeing Employment in Washington



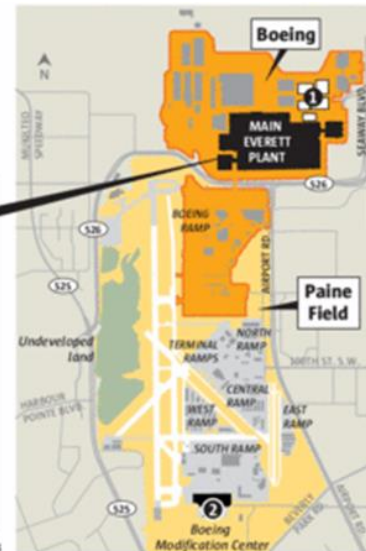
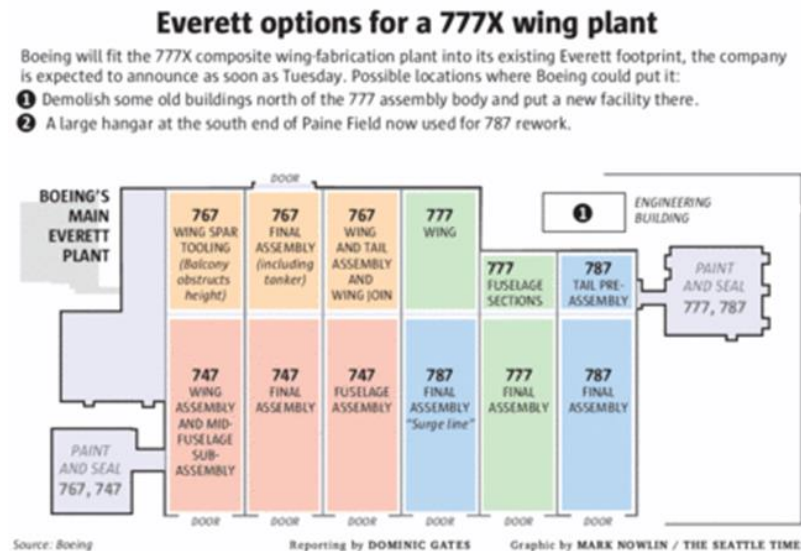
777 production provided **19,800 jobs** in 2012, representing **27%** of Boeing Commercial employment.

The 777X Opportunity

- 1,100+ 777s built in Everett to date
- New design features larger engines, composite wings, 787-like amenities
- Statewide opportunities for supply chain
- Extension of tax incentives to 2040
- Streamlined permitting
- New training programs in aerospace and advanced materials

777X: Where do we go from here?

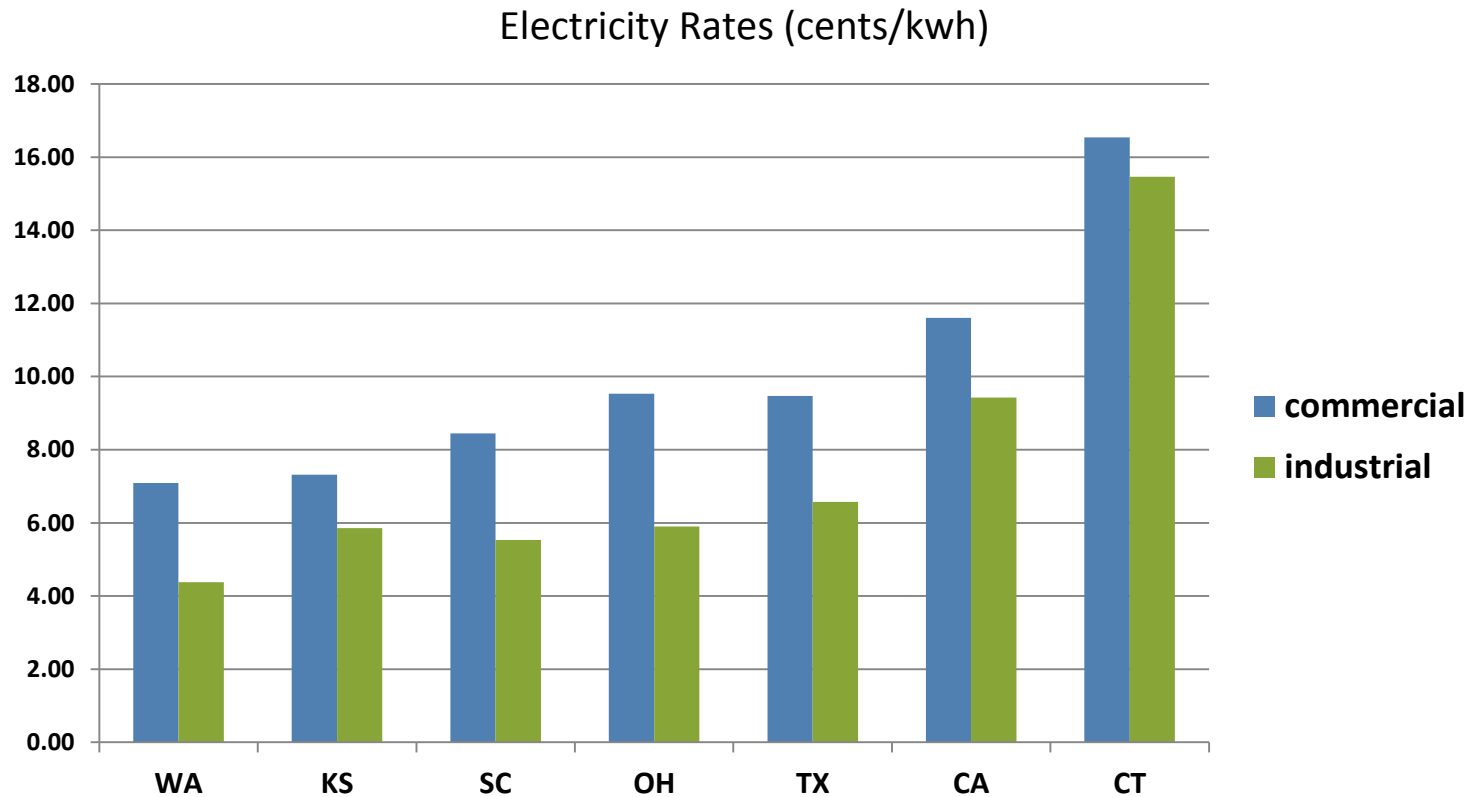
- Boeing's new 1.3 million-square-foot 777X wing plant will set the bar for carbon composites technology.
- Facility is the largest single structure being built in Washington in 2015.
- Factory is to be ready for occupancy in 2016, and production will start in 2017.
- Boeing is recruiting supply chain partners:



Washington State's Assets

- **A Growing and Diversified Aerospace Cluster** - allowing existing and new companies to thrive.
- **A Deep and Talented Aerospace Workforce** – made of a robust pipeline of aerospace workers.
- **A Culture of Aerospace Innovation** – encouraging discovery and development of new technologies.
- **An Integrated Supply Chain** - organized across the state to support the industry and ensuring a healthy business climate.

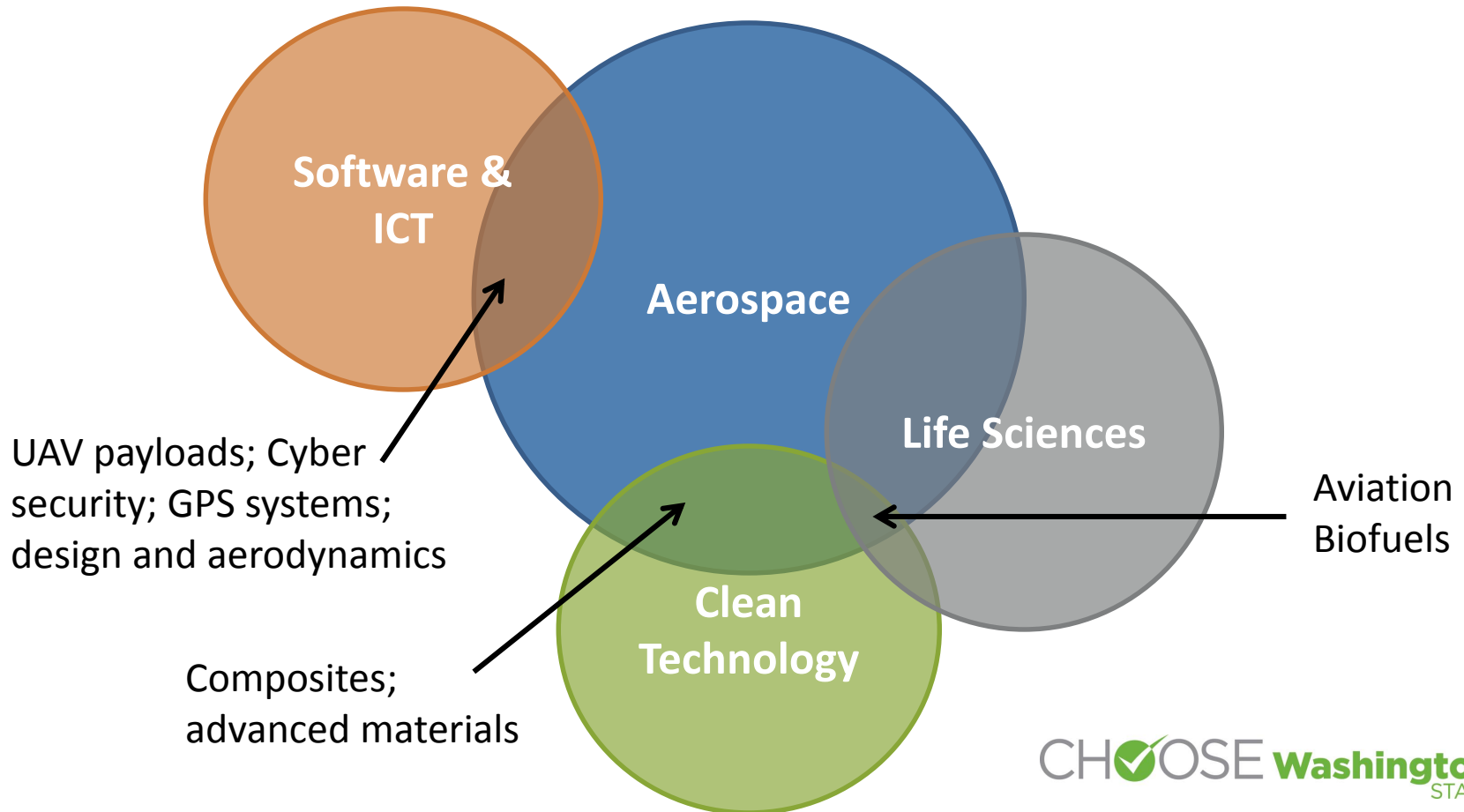
Choose Washington: Energy Costs



Source: U.S. Energy Information Administration

Choose Washington: Cross-sector Synergies

Collaboration with other industries will drive aerospace growth in the future.



Composites

- 100 Advanced Materials Companies in Washington State.
- \$3.3 billion Annual Revenue.
- Aerospace, automotive, wind, maritime sectors.

SGL
AUTOMOTIVE CARBON FIBERS

TORAY



Aviation Biofuels

- Boeing and Alaska Airlines team up for first commercial flight using biofuels.
- UW and WSU share \$90 million NARA grant to study woody biomass.
- WSU selected to lead FAA Center of Excellence for Alternative Jet Fuels & Environment.



Space Exploration

- Washington is one of the leading states in space exploration, particularly in propulsion systems for use beyond the Earth's atmosphere.
- Outer space business in Washington is generating about \$150 million in revenue and is growing. It employs about 1,000 people.

The SpaceX logo, featuring the word "SPACEX" in a bold, blue, sans-serif font, followed by a stylized grey and white swoosh that curves upwards and to the right.The Aerojet Rocketdyne logo, with the words "AEROJET" and "ROCKETDYNE" in a bold, black, sans-serif font. A stylized blue and red rocket arrow points upwards and to the right.

Unmanned Systems



- Long history as a leader in aircraft and unmanned aerial vehicle design and manufacturing.
- Washington State ranks 2nd of states with high potential for economic growth.
- Strong clustering of companies along the Columbia River Gorge.
- WSU develops an hydrogen powered UAS.



Choose Washington: Government Support



- The Governor has made strengthening the aerospace sector in Washington a priority.
- The Washington State Department of Commerce's team of experts will help you effectively locate a business in Washington, find new partners, research and enter new markets, export your products, guide you through permitting and coordinate workforce training.
- The Washington Aerospace Partnership focuses on workforce training, R&D and economic development to:
 1. Improve coordination of the state's aerospace training, education, research and development.
 2. Provide policy advice to strengthen the industry and support job growth in aerospace.
 3. Provide a collaborative forum for industry, labor and government.

Aerospace Companies in Washington

All aspects of the supply chain . . .



Global Aerospace Investment in Washington

Foreign presence in Washington's Aerospace Cluster



Working with Washington

- Business Development Assistance
- Site Selection
- *Soft Landing* Package
- Referrals

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Information provided courtesy of Washington State Department of Commerce and the Pacific Northwest Aerospace Alliance

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